OER 동향
OER관련 해외 사례 보고서입니다.

1. OER 등장 배경

1990년대부터 인터넷을 통해 상호 지식 정보 교류의 장이 시작되었다. 최근에는 Web 1.0부터 2.0까지 다수 사용자들 간의 상호 지식 정보 교류를 위한 다양한 소통 커뮤니케이션들이 개발되어 오고 있다. 이러한 개발로 말미암아 교육 분야를 포함한 광범위한 활동에 영향을 미치고 있다. 특히, 교육 활동에 있어 상호 지식 정보 교류 운동에 핵심이 되는 것이 OER 확산 운동이다. 이 OER 확산 운동은 기존의 교육 패러다임을 새로운 IT 기술의 접목으로 바꾸기 위함에 그 목적이 있다고 해도 과언이 아니다. 즉, 새로운 교육 패러다임이란 양질의 교육에 대한 접근성을 강화하고 지식에 대한 자유로운 공유와 교환이 최대한 확대될 수 있도록 하는 것이다. 결국 교육 수요자들의 교육 격차를 해소하기 위해서는 상호 지식 정보가 공유되고, 자유롭게 사용, 분배, 변경될 수 있는 오픈 소스식 접근의 공개 교육 자료 제공(OER)이 필요하다고 인식되고 있다. 이와 같이 오픈 소스식 콘텐츠 개발 방법이 교육 분야에 적용 된다면 교수자, 학습자, 학부모 등이 교육 컨텐츠 개발 과정에 참여함으로써 그들 간의 요구 및 의견 수렴을 통해 교육 컨텐츠의 수정과 편집이 이루어지고, 결국 교육의 질을 향상 시킬 수 있을 것이다. 이를 위해 시작된 것은 인터넷을 통한 지식 정보들의 공유를 확대를 위한 오픈 소스 모델의 적용이다. 이 오픈 소스 모델을 통한 다양한 응용 분야의 공통점은 다음과 같다.

학생과 OER
This module provides ideas for how you can work with your students using OER.

The module, "What is Localization?," provided overview of localization—making content context-specific. This module, "Students and OER," will present OER activities you can use with your students.

Students and OER

The OER process has the potential for supporting new instructional approaches in the classroom. These approaches become possible because the conditions that OER provides lend flexibility for sharing educational resources worldwide. These conditions are scaffolded by the variety of nonrestrictive licenses to choose from (see OER Licensing and Conditions of Use) as well as the ability to access these resources through OER repositories. As educators integrate OER into their teaching, students benefit from exposure to a wider range of pedagogical expressions through the materials created by other educators and learners from all over the world. This diversity of pedagogical approaches and cultural perspectives is a foundational aspect of OER. The endless options that this diversity provides give educators and learners a springboard for integrating new ways of working in educational environments.

Students are not only impacted by the diversity of materials offered through OER. The OER process opens up possibilities for collaborations with other students as well as with their teachers in creating content. Here are a few ideas on how OER can benefit students:

- The activity of remixing content can provide new ways of looking at the subject which can open up dialogue between teacher and student and student to student. It can also help develop cognitive skills as well as computer skills.
- Using an OER repository as a portal for collaborative assignments can spark students working with each other within a local classroom as well as with students in schools in any part of the world.

- Teachers can guide students in the creation of content with the intent of submitting it to an OER repository. The act of sharing back content assists students in becoming participants of and not just consumers of content. Knowing that others will use their work instills a sense of ownership, pride, and a quest for creating high quality work.

OER stories from around the world

Katrín's assignment in her teacher training class is to use OER with her students.

Students collaborate on an English assignment to create a web-based magazine.

Your experience using open and freely shared course-related materials is valuable in the reuse and evolution of the materials. Tell us your story; how you've used these materials and how their use has impacted how you teach or learn.

Integrating OER Into the Classroom

These links provide direct access to several course-related components available in OER Commons. Consider using or remixing one or more of these components to either present to your students or as hands-on activity for your students to engage with the OER process.

Course-related Components in OER Commons	
Activities or labs	Syllabi
Homework and assignments	Lesson plans

Textbooks	Lecture notes
Simulations	Audio lectures
Games	Video lectures
Assessments	Teaching and learning strategies

The results list for all the course-related components can be refined using any combination of over 70 filtering criteria by clicking on the “Filter Results” button.

The OER process of use, modification, and sharing back can become part of an instructional approach you take with students. Not only can you customize openly sharable materials that you present to your students, but you can also facilitate the OER process with your students to help them become producers of content. The content your students create becomes part of their learning process as well as a representation of their learning.

Activity: Share Your Experience

We’re discussing the impact of OER in Teaching and Learning in OER Commons. Post your stories, suggestions, and questions with using OER materials in your teaching and learning. Here are a few questions to consider in your post:

1. Share some of your teaching strategies in how you have implemented OER with your students.
2. Describe how your students have used OER.
3. What have been your challenges in using OER with your students?
4. If you haven’t used OER with your students, what are the barriers?

For More Information

The following resources have been selected to provide more information on concepts we covered in this module.

- Open Educational Resources: Toward a New Educational Paradigm: http://www.ijournal.us/issue_14/print_version/ij_14_04_articleprint_Petrides_Jimes.htm
- OER Categories: http://www.oercommons.org/oer

Other modules in this course include …

- Why OER?
- Finding OER Materials You Can Start Using Now
- Tagging, Rating, and Reviewing OER Materials
- My OER Portfolio
- Submitting Materials to OER Commons
- OER Licensing and Conditions of Use
- What is Localization?
- What are Open Textbooks?
- OER Case Study
- Glossary

This module presented OER activities you can use with your students. The next module, "What are Open Textbooks?," will provide an overview of open textbooks.

OER Commons Links

For more information about OER Commons, send an email to info@oercommons.org.

Use this feedback form to send OER Commons general feedback, a feature request, or information about a bug/problem you had using the site.

To see the ever-growing list of the new content providers and contributors to OER Commons, visit the Content Providers page often. You can be one too!

“Quotable Quote”

Successful students create to learn, and learn to create.[footnote]
Shneiderman, B. (2002). *Leonardo’s Laptop.* Cambridge, MA: MIT Press.

About This Module

The "How Tos" of OER Commons is a set of learning modules evolving out of the development of OER Commons (http://www.oercommons.org), a teaching and learning network for free-to-use educational materials from around the world, created and licensed by the Institute for the Study of Knowledge Management in Education (ISKME).

Course contributors are Lisa Petrides, Amee Godwin, and Cynthia Jimes, and online learning consultant, Patricia Delich.

For more information, visit http://www.iskme.org and http://elearningnetworks.com.

OER Licensing and Conditions of Use

The module “Submitting Materials to OER Commons” showed how to submit content items or links to items about the field of open education to OER Commons. This module, “OER Licensing and Conditions of Use,” will explain what authors need to know about licensing and conditions of use. It will also cover the licensing options in OER Commons.

What OER Authors Need to Know About Licensing

This module is intended to offer a general overview of the basics of licensing OER materials to assist you in using others’ materials as well as sharing your own. It will not cover the legalities of every aspect of intellectual property. Specifically, this module will cover the licensing options available in OER Commons as well as the conditions of use. The objective is to provide a basic understanding of licensing to help you make an informed choice as you both use and submit content to OER Commons. Here are a few scenarios to illustrate the types of material licensing issues an educator may face:

- You have created a set of Algebra materials and exercises and want to offer them for others to use, but want to make sure you receive attribution for your work.
- You have written a story of a boy who travels to Central America with his family for your geography students, and are willing to share it with other teachers, but don’t necessarily want your name attached to it.
- You have downloaded a useful exercise for your Wednesday afternoon science lab from an OER site, but aren’t sure if you can legally change it to meet your local needs.
- You found a photograph of lemurs online, but you aren’t certain if you have permission to insert it into your PowerPoint presentation on Madagascar that you are preparing.

The philosophy of OER is based on the idea of sharing and re-using content. Because the restrictions of traditional copyright laws are not appropriate for new media and the culture that has grown around it, legal experts in the field of new media have pioneered alternative legal

frameworks for sharing, reusing, and remixing content. Creative Commons has been in the forefront of this movement; their goal is “to build a layer of reasonable, flexible copyright in the face of increasingly restrictive default rules.”

For an overview of the limitations of the traditional copyright system, and how Creative Commons addresses these limitations, watch this short video called “Get Creative.”

When you submit materials to OER Commons to share with others, you be asked to choose a license for your work. During the materials submission process, you will be presented with three licensing options to choose from:

1. Creative Commons
2. GNU Free Document
3. Custom/Other

This module will provide a description of each licensing option; however, because OER Commons recommends the use of Creative Commons licensing, this module will primarily focus on Creative Commons.

What is Creative Commons?

Creative Commons is a nonprofit organization that provides a free alternative to the restrictions of the traditional copyright laws. Offering several licensing options, authors have the flexibility to decide how they want others to use their materials. Watch this short video, “Wanna Work Together?,” for an overview of why you would want to use Creative Commons licensing.

Using a Creative Commons license does not mean you are giving up rights to copyrighting your work. This short overview explains the four main licensing conditions and provides scenarios to illustrate how the licenses are used. To further understand Creative Commons licensing, read descriptions of the six main licenses.
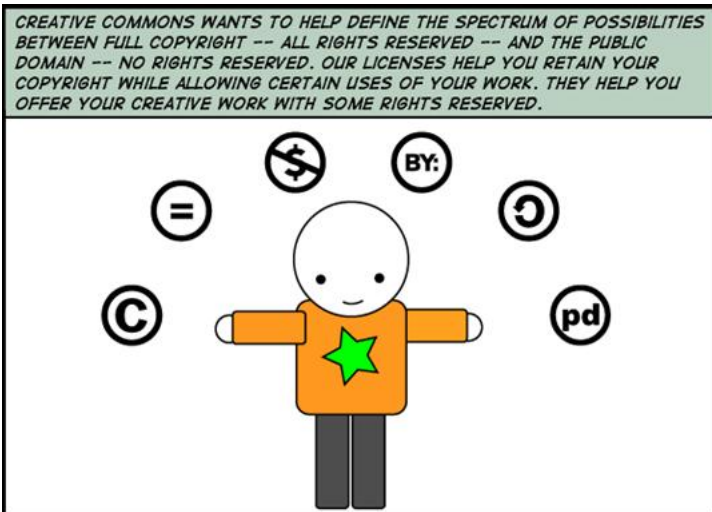
Figure 1: Creative Commons comic defining the spectrum of possibilities for copyrighting material. From: http://wiki.creativecommons.org/Spectrumofrights_Comic1

Before submitting your materials to OER Commons, and before deciding on a license, Creative Commons recommends you make sure that:

- a Creative Commons license can be applied to the type of work you want to license
- you understand how Creative Commons licenses operate
- you have the rights for the material
- you are specific about what you are licensing
- if you a member of a collecting society, you are allowed to use a Creative Commons license.

Read more about what Creative Commons has to say about the above recommendations.

After ensuring you can use a Creative Commons license for your material, you are ready to take the next step in licensing it. During the process of submitting your material to OER Commons, you will be asked two questions to help determine which license is most appropriate for your needs. Figure 2 is a visual representation of the Creative Commons licensing form. You will see this form during the process of submitting your

material to OER Commons—it appears as a link on the OER Commons submission form.

Choose a License

creative commons

CHOOSE A LICENSE

provided by Creative Commons

You've made a work you're proud of. Now it's time to get creative with how you make it available.

Creative Commons licenses help you share your work while keeping your copyright. Other people can copy and distribute your work provided they give you credit — and only on the conditions you specify here. This page helps you choose those conditions. If you want to offer your work with no conditions, choose the public domain.

Allow commercial uses of your work? (more info)

- Yes
- No

Allow modifications of your work? (more info)

- Yes
- Yes, as long as others share alike (more info)
- No

Select a License

Note: To license a work, you must be its copyright holder or have express authorization from its copyright holder to do so.

Creative Commons does not provide legal advice or services. We provide form legal documents; the rest is up to you.

Figure 2. Visual representation of the form you will see when you complete the OER Commons submission form.

Look at this example to see how a Creative Commons license is displayed for an item in OER Commons. On this page you will see an icon that represents the chosen Creative Commons license as well as a link to the license. In this instance the author chose theAttribution-Noncommercial-Share Alike 3.0 Unportedlicense. Let's break down what each of these words mean:

- Attribution: You must attribute the work in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work).
- Noncommerical: You may not use this work for commercial purposes.
- Share-Alike: If you alter, transform, or build upon this work, you may distribute the resulting work only under the same or similar license to this one.
- 3.0: the version of this license.
- Unported: the license has not been adapted for a local jurisdiction.

With this particular item, the author chose a license that allows others to copy, distribute, and transmit the work as well as **remix** it, which means you can adapt the work for your own use.

If you'd like more information about Creative Commons' Version 3 license, read a brief explanation by their General Counsel.

Using Others' Work

Before using someone else's material you found in OER Commons, check the material's licensing. This information can be found on the item's overview page in the section called "Conditions of Use." A link to the license is provided; the license will describe how the material's author has specified the way it can be used.

Sharing Your Work

Here is a recap of how to license material you created and want to share in OER Commons using a Creative Commons' license:

1. Determine whether you can use a Creative Commons license for your work.
2. If necessary, replace or remove content that you do not have permission to use. Or get permission from the author(s) who hold the copyright.
3. Login to OER Commons and click on OER Matters. This will take you to the page where the submission forms are located.
4. Complete the submission form, and decide which Creative Commons license you would like to use. The top-level choice is the most current Creative Commons license. You can choose an older license by clicking on the + icon next to "show/hide other Creative Commons licenses.
5. After you click the "Save" button on the bottom of the submission form, the license you chose will be attached to the material you submitted.

To see the item you submitted with the license you chose, go to your OER Portfolio. You'll need to be logged into OER Commons to view your portfolio. Once you are in your portfolio, click the link called "Items I have submitted." Find the name of the item you submitted and click on its link. Look under "Conditions of Use" to see your license.

GNU Free Document License

GNU Free Document license is another way to license your work for others to use. The GNU Free Documentation License (GNU FDL or simply GFDL) has been designed by the Free Software Foundation (FSF). The GFDL was intended for manuals, textbooks, other reference and instructional materials, and documentation for GNU and open source software. However, it can be used for any text-based work of any subject matter. For example, Wikipedia uses the GFDL for all of its text.

The GFDL license grants rights to readers and users of materials to copy, share, redistribute and modify a work. It requires all copies and derivatives to be available under the same license. Copies may also be sold commercially. There are specific requirements for modifying works involving crediting the creator of the work and for distributing large numbers of copies.

Here is one example of an item from OER Commons that uses the GNU Free Document license.

Custom/Other

Custom License is used to describe the terms granted and restrictions imposed by the copyright holder for a work covered by copyright in order to provide a clear alternative to "All Rights Reserved." It simply allows the creator of a work to state conditions for which educators and learners may view, use, share, re-distribute, or modify a work. Allowing "use for educational purposes only," for example, grants a reader or user of a work the opportunity to use it in a classroom or for personal learning or research purposes without needing to ask permission or pay a fee. Permission to alter a work may be prohibited or not, and the conditions may be specifically described. Commercial use may also be prohibited and can specifically be stated as such.

Non-compatibility of Licenses

The differing requirements and restrictions of Creative Commons (CC), GNU Free Documentation License (GFDL) and Custom-licensed or Copyrighted (All Rights Reserved) materials, make these licenses incompatible with each other. Combining content across license type is still a legal and technical obstacle for creating thoroughly remixable content.

OER Commons Conditions of Use

This section is from the OER Commons' web site:

OER Commons encourages the use of the Creative Commons licenses to govern the use of OER, but does not require them. Creative Commons is a framework for institutions and authors to specify limitations and freedoms around use and reuse of resources, beyond traditional copyright.

OER Commons allows Content Providers to describe custom licensing agreements that cover their resources. Many resources may inherit legacy licensing and copyright arrangements. Although we seek to point to open and reusable content, OER Commons in no way promotes the use of materials outside the particular legal restrictions imposed by a resource author or provider.

A brief introduction from Creative Commons' Choosing a License is here:

Offering OER under a Creative Commons license "does not mean giving up your copyright. It means offering some of your rights to any member of the public but only on certain conditions. What conditions? You can find an overview of the Creative Commons licenses here."

All of the Creative Commons licenses require that a user or reuser of a resource "give attribution in the manner specified by the author or licensor."

OER stories from around the world

Read these three short stories of how different people have used Creative Commons licensing for their work.

Your experience using open and freely shared course-related materials is valuable in the reuse and evolution of the materials. Tell us your story; how you've used these materials and how their use has impacted how you teach or learn.

Activity: Share Your Experience

At the core of OER use and re-use are legal issues surrounding the sharing, use, and re-use of OER as a way to sustain and grow the OER movement.

In the OER Commons discussion "Intellectual Property," share your thoughts about this important issue. Here are a few questions to consider in your post:

1. How does the shift from proprietary to participatory impact OER?
2. How do current licenses serve the purpose of OER?
3. What does the concept of "open" mean to you? Which attributes of "openness" are most important to you?

For More Information

The following resource has been selected to provide more information on concepts we covered in this module.

- Watch the video "A Fair(y) Use Tale"

Professor Eric Faden of Bucknell University provides this humorous, yet informative, review of copyright principles delivered through the words of the very folks we can thank for nearly endless copyright terms. From: http://cyberlaw.stanford.edu/documentary-film-program/film/a-fair-y-use-tale

Other modules in this course include …

- Why OER?
- Finding OER Materials You Can Start Using Now
- Tagging, Rating, and Reviewing OER Materials
- My OER Portfolio
- Submitting Materials to OER Commons
- What is Localization?
- Students and OER
- What are Open Textbooks?
- OER Case Study
- Glossary

This module provided an overview of what authors need to know about licensing and conditions of use. We also talked about the licensing options

in OER Commons. The next module, “What is Localization?,” will provide an overview of localization—making content context-specific.

OER Commons Links

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Use this feedback form to send OER Commons general feedback, a feature request, or information about a bug/problem you had using the site.

To see the ever-growing list of the new content providers and contributors to OER Commons, visit the Content Providers page often. You can be one too!

“Quotable Quote”

New media break up old knowledge monopolies; indeed, create new conceptions of knowledge, even new conceptions of politics.[footnote] Postman, N. (1988). *Conscientious Objections*. New York: Vintage Books.

About This Module

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Course contributors are Lisa Petrides, Amee Godwin, and Cynthia Jimes, and online learning consultant, Patricia Delich.

For more information, visit http://www.iskme.org and http://elearningnetworks.com.

OER Delivery, Storage, and Organization

OER Delivery, Storage and Organization

Lesson Components

- Fast Fact
- Skill/Objective
- Success Indicators
- Introduction
- Activity
- Review questions
- Resources

Fast Fact

"As of January 2006, there were over 3,200 modules and over 150 courses in Connexions. Volunteers are translating modules and courses into a wide variety of different languages, including Spanish, Japanese,Italian, Chinese, Portuguese, and Thai." - OECD

Skills/Objectives

Learners will be able to:

1. Course participants will use various tools as well as peer collaboration to build a Public Domain Materials Portfolio of discipline-specific public domain materials suitable for use in their own teaching.
2. Determine cost-effective printing options for students.

Success Indicators

1. OER added to learner's own online collection or portfolio.
2. OER review posted by the learner.

Introduction

Several resources are available on the Internet that provide teachers with tools to organize, deliver, and share OER for use in instruction. Some of these are: MERLOT, Connexions, and WikiEducator. Instructors can deliver deliver OER to students in either digital or print formats. OLCOS, the UK's Open Learning Content Observatory Services project contains a 30 minute tutorial about how to publish and share OER.

OER Commons

OER Commons allows members to share portfolios. Your personalized portfolio allows you quick access to your previous use of the OER Commons. As you engage with OER content by submitting ratings and reviews, your portfolio is created automatically. If desired, you can share your portfolio with others and allow others to build on what you know. Also, you can view others' portfolios to see how people are finding, using, and interacting with OER.

MERLOT

Read about MERLOT's Personal Collections. Build and display your portfolio, as it evolves for the duration of your students' course participation, using the From the Author Snapshots.

WikiEducator

WikiEducator provides an Content Development Project as an opportunity for insturctors to contribute and share their OER.

Connexions

Funded by the William and Flora Hewlett Foundation, Connexions is part of a broader effort to use the internet for innovative delivery of educational materials. At Connexions, instructors can set up a collection of learning

materials. A course/collection contains several Connexions modules that you group together in a specific order. These modules will appear as chapters in a single document to Connexions visitors who view your course/collection.

Rice University's Connexions provides on-demand printing with QOOP Inc. that will allow students and instructors to order high-quality, hardbound textbooks from Connexions via the internet for affordable prices.

In the Connexions Community College Initiative, the top 10 community college courses, including English composition, college algebra, introduction to psychology, general chemistry, are being developed. These courses will be available for free in Connexions and in a low-cost printed form. Under this model, readers can access all books online for free, and they will pay only if they want a printed book, which they'll order online and for home delivery. Connexions also plans to develop a catalog of the 10 most-popular community college textbooks, which also will be free for online viewing and cost less than $30 when purchased as hardbound books. Connexions plans to offer more than 100 titles for online purchase by year's end.

Delivery of Course Materials

OER developers can distribute their learning materials via the internet using the tools and resources provided for free to educators at WordCircle, NiceNet, Digication, or Epsilen.

Publishing Learning Materials
QOOP's print-on-demand service will allow Connexions users to order customized course guides and a variety of fully developed Connexions textbooks. Standard paperbacks will take just 3-5 days to produce and ship, and traditional hardbacks will take about a week to produce. QOOP ships directly to customers.

Lulu lets you publish and sell and print on demand books, e-books, online music, images, custom calendars safari Take a tour of Lulu to find out how to publish using their services. Lulu makes 20% of total cost of the textbook you publish using their services. SafariU allows faculty to create, publish

and share customized comuter science and information technology course materials. SafariU was developed by O'Reilly Media in conjunction with substantial feedback from educators and trainers. SafariU allows members to select chapters or sections from O'Reilly books and articles to include in custom print books and online learning resources that students can access directly. Other print-on-demand services include Illumina and exlibris

Activity

Experience

OER Commons

1. If you haven't already done so, join OER Commons. Go to the OER Commons website, then click on Join Now.
2. Click on Start My OER Portfolio.
3. Visit Shared Portfolios posted to the OER Commons website to see to see how others search, use, and interact with OER.

MERLOT

1. View the Gallery of Sample MERLOT From the Author Snapshots then find out how to create your own Author Snapshot using the KEEP Toolkit.
2. Go to the MERLOT website.
    - View a few Personal Collections posted by others.
    - Create your own MERLOT Personal Collection

Connexions

1. Create a Course/Collection at the Connexions website.

Reflect

Post your response to the following to your course Discussion area:

1. What is the best way for you to disseminate OER to your students?

2. Do you want to share your OER for public use and repurposing? Why or why not?

Apply

1. Create a module to share at Connexions.
2. Determine the cost to your students to purchase OER for your course using Lulu.

Review Questions

1. What are some of the print-on-demand services for disseminating OER?
2. What tools and features are available to deliver OER?

Resources

- Case Study: Promoting Use of MERLOT Learning Objects by Sharing Authors' and Users' Pedagogical Knowledge
- Open Educational Practices and Resources. OLCOS Roadmap 2012
- What Makes an Open Education Program Sustainable: The Case of Connexions

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Rice University's Connexions provides on-demand printing with QOOP Inc. that will allow students and instructors to order high-quality, hardbound textbooks from Connexions via the internet for affordable prices.

In the Connexions Community College Initiative, the top 10 community college courses, including English composition, college algebra, introduction to psychology, general chemistry, are being developed. These courses will be available for free in Connexions and in a low-cost printed form. Under this model, readers can access all books online for free, and they will pay only if they want a printed book, which they'll order online and for home delivery. Connexions also plans to develop a catalog of the 10 most-popular community college textbooks, which also will be free for online viewing and cost less than $30 when purchased as hardbound books. Connexions plans to offer more than 100 titles for online purchase by year's end.

Delivery of Course Materials

OER developers can distribute their learning materials via the internet using the tools and resources provided for free to educators at WordCircle, NiceNet, Digication, or Epsilen.Publishing Learning Materials Using Print-on-DemandQOOP's print-on-demand service will allow Connexions users to order customized course guides and a variety of fully developed Connexions textbooks. Standard paperbacks will take just 3-5 days to produce and ship, and traditional hardbacks will take about a week to produce. QOOP ships directly to customers.

Lulu lets you publish and sell and print on demand books, e-books, online music, images, custom calendars safari Take a tour of Lulu to find out how to publish using their services. Lulu makes 20% of total cost of the textbook you publish using their services.SafariU allows faculty to create, publish and share customized comuter science and information technology course materials. SafariU was developed by O'Reilly Media in conjunction with

substantial feedback from educators and trainers. SafariU allows members to select chapters or sections from O'Reilly books and articles to include in custom print books and online learning resources that students can access directly.Other print-on-demand services include Illumina and exlibris

Activity

Experience

OER Commons

1. If you haven't already done so, join OER Commons. Go to the OER Commons website, then click on Join Now.
2. Click on Start My OER Portfolio.
3. Visit Shared Portfolios posted to the OER Commons website to see to see how others search, use, and interact with OER.

MERLOT

1. View the Gallery of Sample MERLOT From the Author Snapshots then find out how to create your own Author Snapshot using the KEEP Toolkit.
2. Go to the MERLOT website.
    - View a few Personal Collections posted by others.
    - Create your own MERLOT Personal Collection

Connexions

1. Create a Course/Collection at the Connexions website.

Reflect

Post your response to the following to your course Discussion area:

1. What is the best way for you to disseminate OER to your students?
2. Do you want to share your OER for public use and repurposing? Why or why not?

Apply

1. Create a module to share at Connexions.
2. Determine the cost to your students to purchase OER for your course using Lulu.

Review Questions

1. What are some of the print-on-demand services for disseminating OER?
2. What tools and features are available to deliver OER?

Resources

- Case Study: Promoting Use of MERLOT Learning Objects by Sharing Authors' and Users' Pedagogical Knowledge
- Open Educational Practices and Resources. OLCOS Roadmap 2012
- What Makes an Open Education Program Sustainable: The Case of Connexions

OER Identifying Sources

OER Tools to Identify and Select

Lesson Components

- Fast Fact
- Skill/Objective
- Success Indicators
- Introduction
- Activity
- Review questions
- Resources

Fast Fact

Open Educational Resources (OER) are “digitized materials offered freely and openly for educators, students and self-learners to use and re-use for teaching, learning and research.” Term first adopted at UNESCO’s 2002 Forum on the Impact of Open Courseware for Higher Education in Developing Countries funded by the Hewlett Foundation. - from Wikipedia

Skills/Objectives

Learners will be able to:

1. Identify resources for use of primary sources as learning materials in their own teaching disciplines.
2. Locate at least one primary source for use in teaching.
3. Develop a lesson plan using primary sources.

Success Indicators

1. OER added to learner's own online collection or portfolio.
2. OER review posted by the learner.
3. Posted lesson plan that uses at least one primary source as an OER for their own teaching.

Introduction

Several resources are available on the Internet that provide teachers with tools to identify and select OER for use in instruction. Some of these are: OER Commons, MERLOT, Connexions, FREE: Federal Resources for Educational Excellence, COL Knowledge Finder, and Creative Commons.

OER Commons

OER Commons is one of several Internet resources where you can identify and select OER. With a free membership, you can add tags, ratings, reviews, comments, and favorites to your own portfolio. You can post to discussion, blog, and wiki areas, and see how others are using OER.

OER Commons is created and produced by ISKME, the Institute for the Study of Knowledge Management in Education. It is generously supported by the William and Flora Hewlett Foundation and represents dozens of collaborations with OER partners and communities across the globe.

MERLOT

MERLOT is a pioneer in the development of searchable and shareable online learning materials for higher education. The site provides collection of peer reviewed learning materials created by registered members. MERLOT provides criteria for peer-review of learning materials submitted.

Take a Tour of the new Merlot. Searches in MERLOT can be sorted by date, reviews ratings, title, author, and material type. A tutorial about how

to search for learning materials using MERLOT is available from the SUNY Teaching, Learning, and Technology Program.

Connexions
Connexions has a repository of OER that are searchable by subject, language, popularity, title, keyword, and author. The repository contains 3925 reusable modules woven into 211 collections. The content in Connexions comes in two formats: modules, which are like small "knowledge chunks," and courses, which are collections of modules. The Connexions Creative Commons open license allows for free use and reuse of all its content.

FREE

FREE: Federal Resources for Educational Excellence provides links to hundreds of education resources from or supported by the U.S. government.

OER Repositories

WikiEducator provides several tools for identification and use of OER including the Exemplary Collection of Open eLearning Content Repositories.Lola Exchange provides learning objects and learning activities available for searching by topic, title, discipline, or author. Disciplines listed are Mathematics, Science and Technology, Social Sciences, Business, Arts, Education, and Humanities. All materials are reviewed according to standard criteria by volunteers. Curriki is a global education and learning community dedicated to providing quality learning materials worldwide. Learning materials can be searched by the following topics:Arts, Educational Technology, Foreign Languages, Health, Language Arts, Mathematics, Science, Social Studies, and Vocational Education. A re-launch of the site is planned soon to add the following new features:

- Access information, tools, and resources from the new member home page.
- View and comment on other members' learning resources.
- Edit and collaborate on learning materials, and build collections and resources with Currikulum Builder.
- Develop content in the Currikulum Builder with templates.

- Manage your own contributions and collections, as well as your user profile and blog, using your personalized space in MyCurriki.

COL Knowledge Finder

COL Knowledge Finder is a service that searches reliable sources of information in open and distance learning and provides organization tools. Emphasis is on international development goals like poverty alleviation, health and education for all. The COL Knowledge Finder service is provided by The Commonwealth of Learning (COL) which is an intergovernmental organisation created by Commonwealth Heads of Government to encourage the development and sharing of open learning and distance education knowledge, resources and technologies. To use the search tool, click on "Search". Then follow the guidelines on the screen. More details are available from the Orientation. Training videos for effective searching and use of the COL Knowledge Finder tools are available.

Creative Commons

Creative Commons provides a way to find shareable photos, music, text, books, and other educational material utilizing Creative Commons enabled search services at Google, Yahoo!, Flickr, blip.tv, Owlmusic, and SpinXpress. A Content Curators wiki area is available that provides a list of curators of Creative Commons-licensed content. Users are invited to contribute to and edit this list themselves.

Edu2.0

Take a tour of Edu2.0 to discover all browsable shared course content organized by topic. Resources include quizzes, webquests, presentations, projects, experiments, courses, classes, curricula, audio, video, powerpoint, excel and other kinds of attachments.

Activity

Experience

1. Review the criteria available from MERLOT’s Peer Review process.
2. Go to OER Commons, MERLOT, Connexions, and FREE to search for content in your teaching discipline.
3. View the CNBC video interview with Scott McNealy about Curriki.
4. Visit the OWL Institute Portal to search for resources, people and communities; browse courses and home pages or create your own.

Reflect

1. Participate in the latest OER Commons Survey and check the results.
2. Visit the OER Matters Discussions to read and post comments about the How and Why of OER:

"Share your thoughts, experiences and expertise on the OER movement, its challenges and potential impact. Why does OER matter, how does it work, and what are the possibilities for the future of use and re-use of open education content?"

Apply

1. Review learning materials at OER Commons. Type keywords in the Search box in the upper right corner of the screen to identify at least one OER to review.

- Click on Save this Search.
- Sort by Rating. Click on the title of the OER you want to review, then click on View Item.
- Click on Rate Item to give it your rating.
- Click on Review Item to submit your review.

2. Submit your review of some learning materials at MERLOT. You will need to become a member before you can submit your review.

3. If you know of a good source of open educational resources, submit the Internet address for inclusion on the COL Knowledge Finder submit-a-site page.

Review Questions

1. What are some of the repositories where OER can be located and reviewed?
2. What tools and features are available to identify and select OER?

Resources

- Exemplary Collection of Open eLearning Content Repositories
- Searching for Public Domain Materials on the Web
- Open Educational Practices and Resources. OLCOS Roadmap 2012

[mini-project] Chowning FM Synthesis Instruments

	This module refers to LabVIEW, a software development environment that features a graphical programming language. Please see the LabVIEW QuickStart Guide module for tutorials and documentation that will help you:
	• Apply LabVIEW to Audio Signal Processing
	• Get started with LabVIEW
	• Obtain a fully-functional evaluation edition of LabVIEW

Objective

FM synthesis creates rich spectra from only two sinusoidal oscillators, and is able to emulate the sound of many physical musical instruments. John Chowning's seminal publication on audio-range frequency modulation (FM) in 1973 describes a number of different orchestral instruments such as woodwinds, brass, and percussion that can be created merely by adjusting a few basic parameters of the basic FM equation.

In this mini-project, implement several different Chowning FM instruments and compare them to the sounds of physical instruments. Also develop code to model the Chowning algorithms as LabVIEW **virtual musical instruments** (**VMIs**) to be "played" by a MIDI file within **MIDI JamSession**.

Prerequisite Modules

If you have not done so already, please study the prerequisite modules FM Mathematics and Chowning FM Synthesis Instruments in LabVIEW. If you are relatively new to LabVIEW, consider taking the course LabVIEW Techniques for Audio Signal Processing which provides the foundation you need to complete this mini-project activity, including working with arrays, creating subVIs, playing an array to the soundcard, and saving an array as a .wav sound file.

Deliverables

- All LabVIEW code that you develop (block diagrams and front panels)
- All generated sounds in .wav format
- Any plots or diagrams requested
- Summary write-up of your results

Part 1: Chowning FM Instruments

Chowning FM Synthesis Instruments in LabVIEW provides the specifications for a generic FM synthesis instrument, parameters for a number of different instruments, and a screencast video that walks through the complete process to implement the Chowning clarinet in LabVIEW. Refer to the PDF document in that module that contains the parameters for the remaining instruments: bell, wood-drum, brass, and bassoon. Create your own LabVIEW implementation of each of these four instruments (the clarinet VI is available in that module, as well).

Save a representative sound from each of the five Chowning instruments to a .wav file.

Note: Consider using an audio editor such as Audacity to merge the individual .wav files into a single .wav file that you submit as your deliverable. You can also add your own voice annotation to explain your work.

Part 2: Comparison with Physical Instruments

Visit the **Musical Instrument Samples** database created by the Electronic Music Studios of the University of Iowa at http://theremin.music.uiowa.edu/MIS.html. These recordings of actual instruments were made inside an anechoic chamber to eliminate reflections and other artifacts, so the spectra of the instruments are as accurate as possible. The files are stored in AIFF format; use an audio editor such as Audacity to import the AIFF format. Audacity also includes a tool to view the spectra of the soundfile.

Compare and contrast the FM sounds you created for brass, clarinet, and bassoon to those of the real instruments. Consider time-domain envelope shape and spectrogram patterns.

Part 3: Chowning VMIs for MIDI JamSession

In this part, convert each of the five Chowning instruments you implemented in Part 1 into its own **virtual musical instrument** (**VMI** for short) that can be played by "MIDI JamSession." If necessary, visit MIDI JamSession, download the application VI .zip file, and view the screencast video in that module to learn more about the application and how to create your own VMI. Your VMI will accept parameters that specify frequency, amplitude, and duration of a single note, and will produce a corresponding array of audio samples.

You may wish to keep all of your existing front-panel controls available so that you can listen to your VMI during development. Adjust the parameters to obtain pleasing and realistic settings, and convert the front-panel controls to constants and remove all indicators. Your finished VMI must not contain any front-panel controls or indicators beyond those provided in the prototype instrument.

Finally, choose a suitable MIDI file and use MIDI JamSession to play your FM VMIs. MIDI files that contain multiple channels are ideal, because you can individually assign each of your five VMIs to a different instrument.

Create a .wav file of your finished work.

Note: MIDI percussion events are found on Channel 10, a reasonable place to use your wood-drum instrument. Be aware that the "frequency" value produced by the prototype VMI derives directly from the "note number" value of the MIDI "Note On" messages in the file. On Channel 10, the note number selects from a palette of different percussion instruments as defined in the **General MIDI Sound Set** (http://www.midi.org/about-midi/gm/gm1sound.shtml), so interpreting the value as frequency is meaningless. You can either set up your wood-drum to produce the same waveform independent of the frequency parameter, or you can devise a scheme to translate the note number into useful parameter change for your instruments.

Summary - On Doing OER

Summary of Amee Godwin's contribution to the Impact of Open Source Software and Open Educational Resources on Education series on Terra Incognita. Godwin writes about OER as an active collaborative process aimed at enhancing teaching and learning.

On “Doing OER,” the 20th installment of the Impact of Open Source Software Series, was posted on March 1, 2008, by Amee Godwin. Amee serves as Program Director, OER Commons, Institute for the Study of Knowledge Management in Education (ISKME).

Amee’s work focuses on connecting technology, education, and collaboration. At ISKME, she guides the development of content, interactivity, and partnerships for OER Commons, a teaching and learning network for open educational resources. Thanks Amee for a great posting!

In her posting, Amee moves the dialog around OER from concentrating on the content to exploring the process of creating, recreating, and reusing OER. She describes doing OER as a catalyst for exchanging ideas and knowledge creation among diverse communities of teachers. Amee then sets the stage by asking the following questions:

- What comprises “doing” OER?
- Does it take a new belief system?
- Are we doing it already?
- What examples are there to show off models for active engagement with OER?

Amee highlights some of the issues around community spaces for tagging, sharing, and creation, pointing to developments and activities such as the Library of Congress’ historical image collections in Flickr, the BioQUEST Curriculum Consortium’s use of problem spaces, the wide spread use of LeMill.net by several hundred primary and secondary school teachers, and some of the great work that ISKME is doing through the OER Commons.

The focus of Amee’s message is that the potential for OER as a catalyst for change is in the doing, and that “Doing OER” requires support, tools, and a

cultural shift in many organizations to take advantage of the strengths of networked communities of practice.

One of the roles of the OER Commons is to explore new models for teaching and learning that is a generative process in which OER is done through active inquiry, sharing, mentoring, in a cycle that includes feedback and peer involvement.

Amee's posting provided us the opportunity to consider examples of OER in action and reflect on the "promise of OER," leaving us with the question, are we… "getting any closer to it through the way that we are doing it."

Comments

There were a number of questions and responses that flowed from the posting. Most of the dialog was around the importance of the process of creation of content as an element of learning. There was also comments and questions about the use and reuse of existing content and the importance of collaboration in knowledge creation.

Thanks again to Amee for her interesting and insightful post and responses. I also want to extend a big thank you to Christine Geith, and "cynthiaj" for adding to the post, and other folks who have been reading along. On April 1st (no foolin'), Stuart Sim of Moodlerooms will be posting, which should be a very interesting topic relating to business models in open source software. The schedule for the series can be found on WikiEducator.